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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,749	04/15/2004	Hans-Jurgen Achtzehn	MOH-P030006	8510
24131	7590	01/18/2006	EXAMINER	
LERNER GREENBERG STEMER LLP			ROGERS, DAVID A	
P O BOX 2480			ART UNIT	
HOLLYWOOD, FL 33022-2480			PAPER NUMBER	
			2856	

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/825,749	Applicant(s) ACHTZEHN ET AL. 	
	Examiner David A. Rogers	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20051215</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-9, and 12 are rejected under 35 U.S.C. 102(b) as being unpatentable over “Siemens Underwater System for Inspections” to Framatome in view of Japanese Laid Open Patent Application Publication 2000-338291-A to Masuo.

Framatome teaches a remotely-operated, free-floating underwater inspection vehicle. The vehicle has a camera for performing visual inspection of reactor pressure vessels. Framatome does not teach a vehicle having a pivotally-mounted carrier for holding an inspection head.

The remotely-operated, free-floating underwater inspection vehicle of Framatome (the item shown as reference item 2 in the applicant’s drawings) has a front face and a back face, either of which can be termed as being a end face. The front face typically has several cameras and lighting systems for use during inspections. The vehicle itself can be used to define a longitudinal axis that is perpendicular to either end face. That is, the central axis is used by the applicant as a relative reference axis for the relative placement of carrier. The

central axis and front face do not provide any structural limitation to the remotely-operated, free-floating underwater inspection vehicle.

Masuo discloses a remotely-operated vehicle (reference item 9) for inspecting bolts in a reactor pressure vessel. The vehicle comprises a carrier (reference item 18) that can pivot exclusively about an axis that is parallel with the central axis. The vehicle also has a holding device (reference item 56) for an ultrasonic inspection tool (reference item 28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Framatome with the teachings of Masuo to provide the remotely-operated, free-floating underwater inspection vehicle with the inspection tool of Masuo.

First, it is well known that visual inspection of corroding parts may be deficient in that corrosion may be hidden either by being subsurface corrosion (corrosion under the part's surface) or by being covered with debris. Camera-based images may not show areas having corrosion. Furthermore, camera-based images require visual scrutiny to determine if defects are present. However, visual examinations may not be capable of ascertaining the degree of corrosion. Therefore, the ultrasonic inspection system such as the one shown in Masuo would allow for quick and accurate inspection of areas in the reactor vessel that are prone to corrosion. The use of the remotely-operated, free-floating underwater inspection vehicle in lieu of the winch-operated device of Masuo would allow the inspection tool to reach areas that might otherwise be inaccessible.

With regard to claims 2 and 3 the apparatus of Masuo is configured for ultrasonic inspection of screws (bolts) (reference item 30) in a submerged region of a nuclear reactor. The applicant's claimed location of the screws (in a core baffle) is not given any patentable weight since the apparatus of Masuo anticipates the claims. See *In re Schreiber*, 128 F.3d 1473, 44 USPQ2d 1429 (Fed. Cir. 1997).

With regard to claims 5 and 6 it would have been obvious to mount the motor (reference item 22) and pivot shaft (reference item 20) of the device of Masuo to an edge of the remotely-operated, free-floating underwater inspection vehicle of Framatome in order to provide the pivot axis offset from a central axis of the vehicle of Framatome. By locating the pivot axis offset from a centrally-located axis one will be able to place the carrier so that it does not interfere with the lighting and camera system already in place, some of which are used to pilot the vehicle remotely.

With regard to claims 7 and 8 the inspection tool of Masuo having a pivot axis is capable of being coordinated with a central axis of the vehicle. The tool is capable of inspecting objects over a lateral edge of the vehicle.

With regard to claim 9 the apparatus of Masuo comprises a plurality of support elements on the carrier that are disposed in a circumferential direction. Referring to figure 4 of Masuo the central pivot axis is located at the center pivot (reference item 44). The rigid member (reference item 43) must inherently be formed of two members that are joined (hinged) at the center

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pivot (reference item 44) and at their respective distal pivot points (reference items 41 and 42).

With regard to claim 12 Masuo teaches a carrier disk (reference item 18) for supporting an ultrasonic inspection tool. Masuo does not teach a carrier formed of optically transparent material. The choice of material for the disk does not change the functionality of the disk of Masuo. Furthermore, the applicant's claims do not provide any additional limitations that would require an optically transparent disk. See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). Finally, providing a transparent disk as the carrier would help ensure that it does not interfere with the cameras and lighting systems of the remotely-operated vehicle, some of which are used to pilot the vehicle.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Framatome in view of Masuo as applied to claim 1, and further in view of United States Patent 5,193,405 TO Oomichi *et al.*

Framatome in view of Masuo teaches a remotely-operated, free-floating underwater inspection vehicle comprising a carrier. Attached to the carrier is a motor (reference item 19). The carrier also supports an expandable frame, as seen in figure 4, and a second motor (reference item 24). Masuo does not teach a counterweight.

Oomichi *et al.* teaches that it is known in inspection tools to provide a counterweight (reference item 56, for example).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Framatome in view of Masuo with the

teachings of Oomichi *et al.* to include a counterweight. Counterweight balancing is a well-known concept. Adding a counterweight to the carrier, such as on its upper surface opposite the first motor (reference item 19) would have been obvious in order to reduce the torque on the shaft (reference item 20) by the carrier due to the motor and the expanded frame. The reduced torque will extend the life of the gearing used to rotate the carrier about its pivot axis. Furthermore, Oomichi *et al.* teaches "... a counterweight is provided for further improvement of the operational precision of the system" and "[b]y adding the counterweight 56, it becomes possible to locate the manipulator 43 so that its center of gravity is on the M2 driving axis, and thus the manipulator 43 does not alter the position of its center of gravity even when the position of the manipulator 43 is changed. As a result, no variation in the load to be imposed upon the adhesion pads 40 occurs, and a further improved stability is ensured in securing the device to the wall surface, and thereby ensuring a highly precise defect finding operation."

4. Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Framatome in view of Masuo as applied to claim 1, and further in view of United States Patent 5,959,211 to Wagner *et al.*

Framatome in view of Masuo teaches a a remotely-operated, free-floating underwater inspection vehicle comprising a carrier device for inspecting submerged plant parts using an ultrasonic inspection tool. The tool is mounted to the apparatus via a holder. Masuo does not teach a universal joint for mounting the sensor.

Wagner *et al.* teaches that it is known in the art to use universal joints for mounting sensors. In particular, Wagner *et al.* teaches that individual sensors (reference item 48, for example) are mounted to a holder (reference item 80) using a ball-and-socket joint (reference items 96 and 98) which a common universal joint.

With regard to claim 13 the ball-and-socket joint inherently allows the sensor's body (reference item 82, for example) to rotate about the ball's central axis. The ball, when mounted on the holder (reference item 56) of Masuo, will have a central axis that extends parallel to the pivot axis.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Framatome in view of Masuo with the teachings of Wagner *et al.* to provide a universal joint to mount the ultrasonic sensor to the holder. Doing so would allow the sensor of Masuo to be accurately aligned with the bolt that is to be inspected.

Allowable Subject Matter

5. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Japanese Laid Open Patent Application Publication 04240597 to Taku *et al.* also teaches a remotely-operated, free floating inspection vehicle. The

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device has an end face, the face of the vehicle itself having a central axis. The device also has an inspection tool (reference item 30) having an axis that is offset from the central axis.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208.

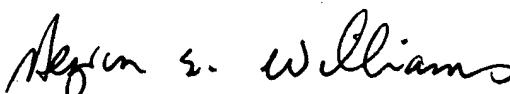
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The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


dar

10 January 2006


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